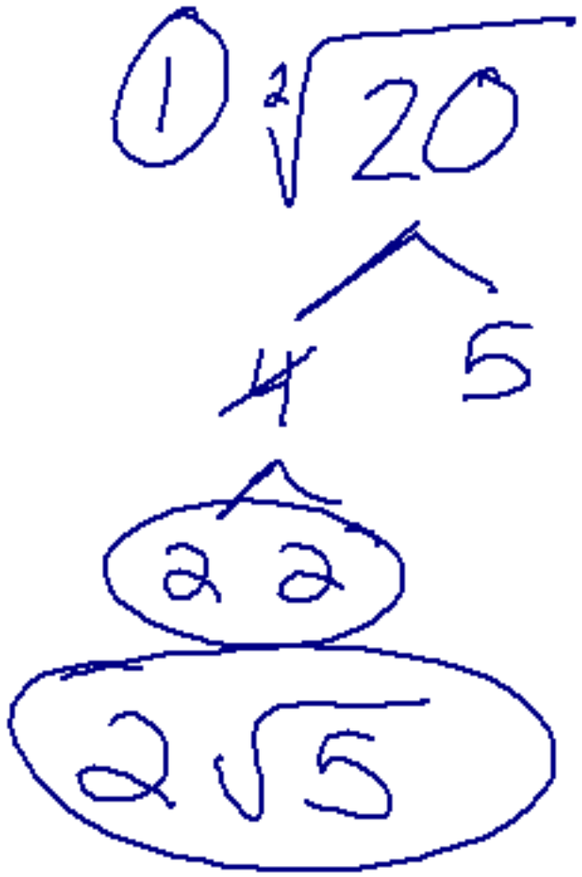
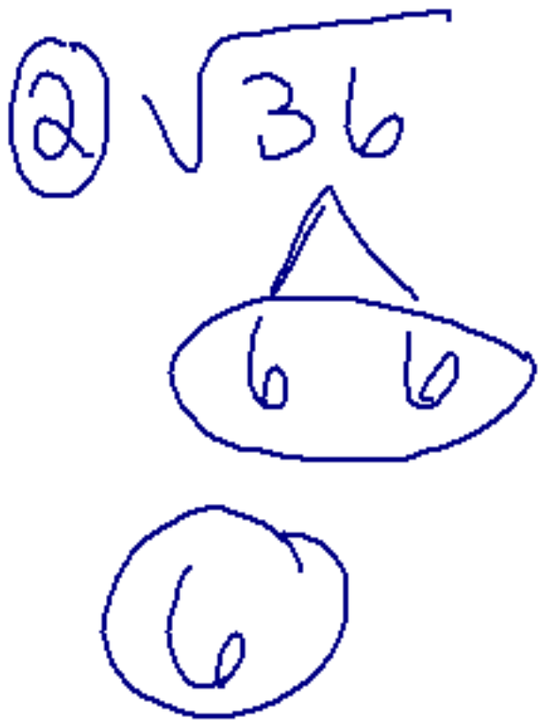
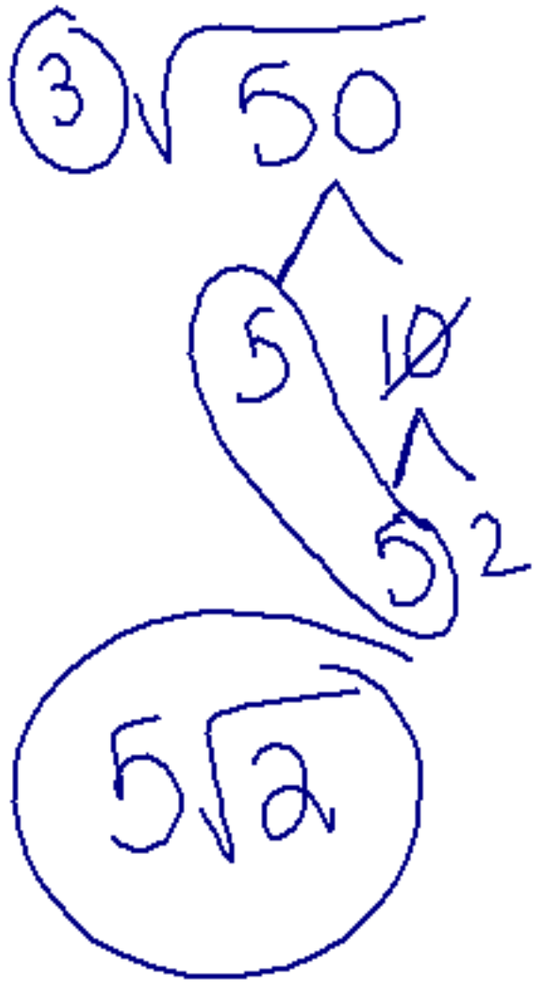






Warm Up worksheet answers

(4) $(3\sqrt{2})^2$

$9 \cdot 2$

(18)

(5) $\frac{3}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$

(6) $\frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$

(7) $\frac{4}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{4\sqrt{2}}{2} = 2\sqrt{2}$

(8) $(4\sqrt{3})^2$

16·3

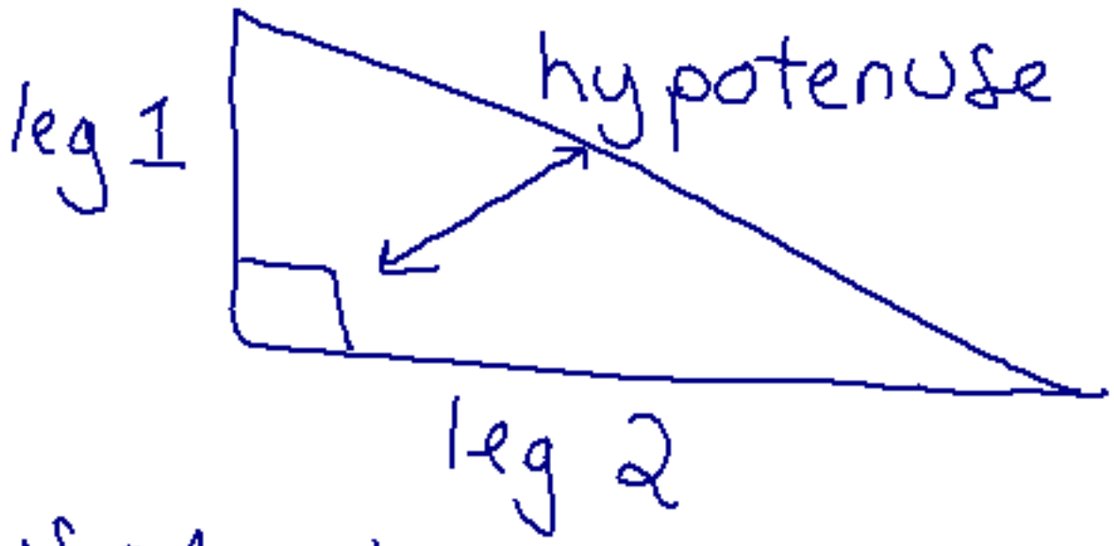
48

Today's notes:

CH 13 - TRIGONOMETRY

Pythagorean Theorem:

- only works on right △s.



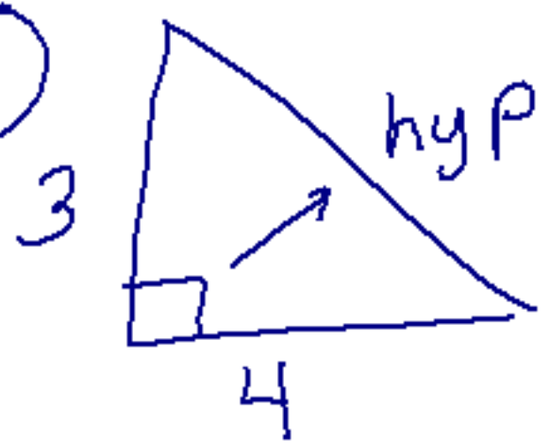
- used when know 2 sides, & trying to find 3rd side

$$(\text{leg})^2 + (\text{leg})^2 = (\text{hypotenuse})^2$$

$$a^2 + b^2 = c^2$$

legs

hyp.

① 

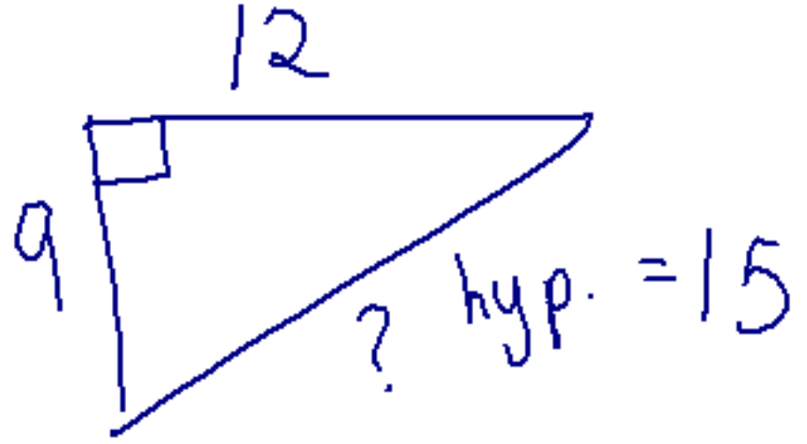
$a^2+b^2=c^2$

$3^2+4^2=c^2$

$9+16=c^2$

$\sqrt{25}=\sqrt{c^2}$

$5=c$

② 

$a^2+b^2=c^2$

$9^2+12^2=c^2$

$81+144=c^2$

$\sqrt{225}=\sqrt{c^2}$

$15=c$

(3)

$a^2+b^2=c^2$

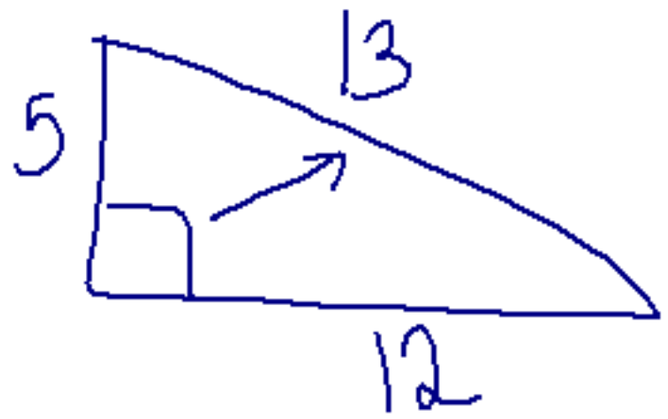
$16^2+12^2=c^2$

$256+144=c^2$

$\sqrt{400}=\sqrt{c^2}$

$20=c$

(4)



$a^2+b^2=c^2$

$5^2+b^2=13^2$

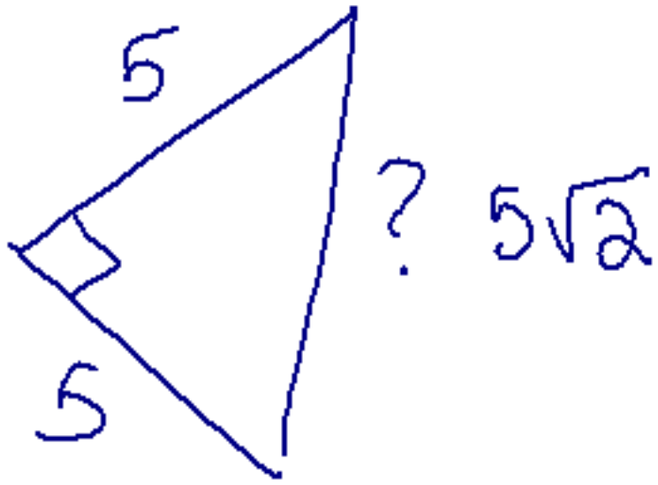
$25+b^2=169$

$-25 \quad -25$

$\sqrt{b^2}=\sqrt{144}$

$b=12$

(5)



$a^2+b^2=c^2$

$5^2+5^2=c^2$

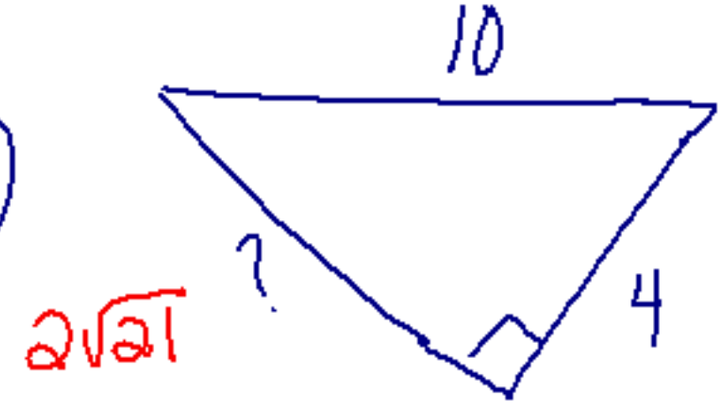
$25+25=c^2$

$\sqrt{50}=\sqrt{c^2}$

$\sqrt{50}=c \approx 5\sqrt{2}$

$5\cdot 5\cdot 2$

(6)



$a^2+b^2=c^2$

$4^2+b^2=10^2$

$16+b^2=100$

$b^2=84$

$b=\sqrt{84}=2\sqrt{21}$

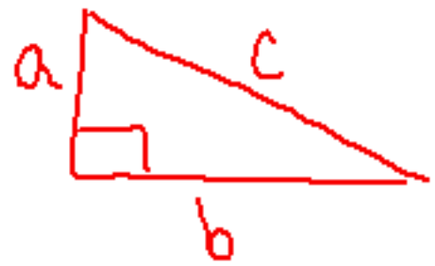
$4\cdot 21$

$2\cdot 2\cdot 3$

Pythag. thm doesn't work = not right △

Cases:

Right	$a^2+b^2=c^2$
Acute	$a^2+b^2>c^2$
Obtuse	$a^2+b^2<c^2$



① 3^2+4^2 5^2 (right)

$9+16$ 25

$25 = 25$

② 5^2+6^2 7^2 (acute)

$25+36$ 49

$61 > 49$

③ 8^2+15^2 17^2

$64+225$ 289

$289 = 289$

right

④ 3^2+5^2 7^2

$9+25$ 49

$34 < 49$

obtuse

⑤ $2^2+2.1^2$ 2.7^2

$4+4.41$ 7.29

$8.41 > 7.29$

acute

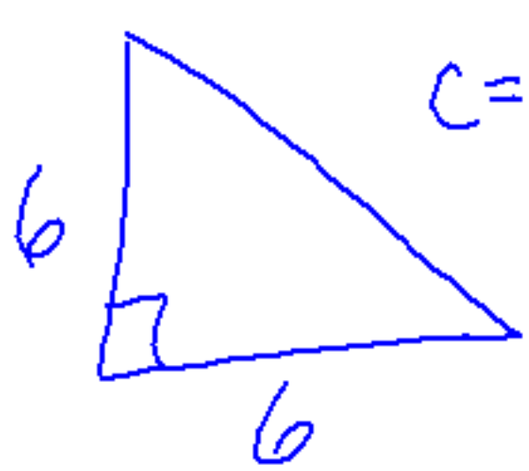
⑥ 5^2+5^2 9^2

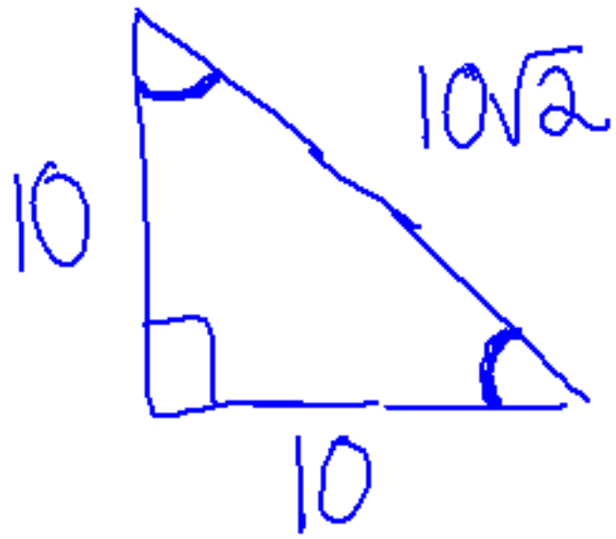
$25+25$ 81

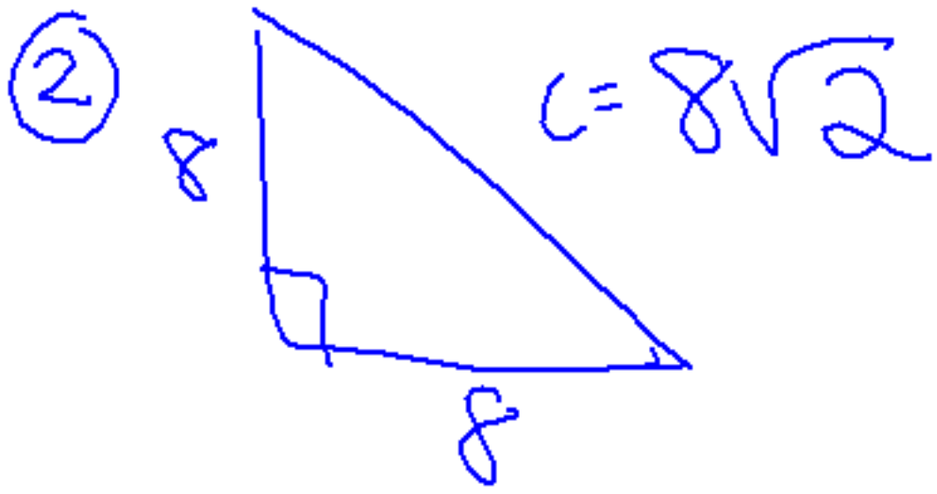
$50 < 81$

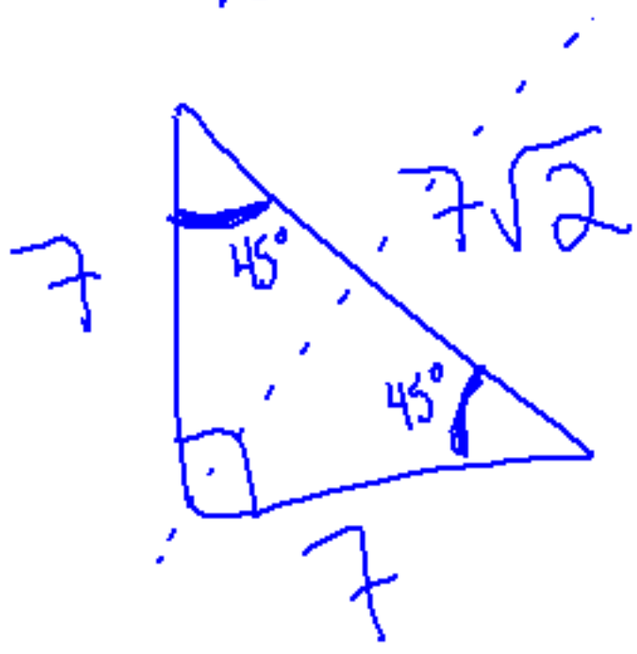
obtuse

Examples (not on notes):

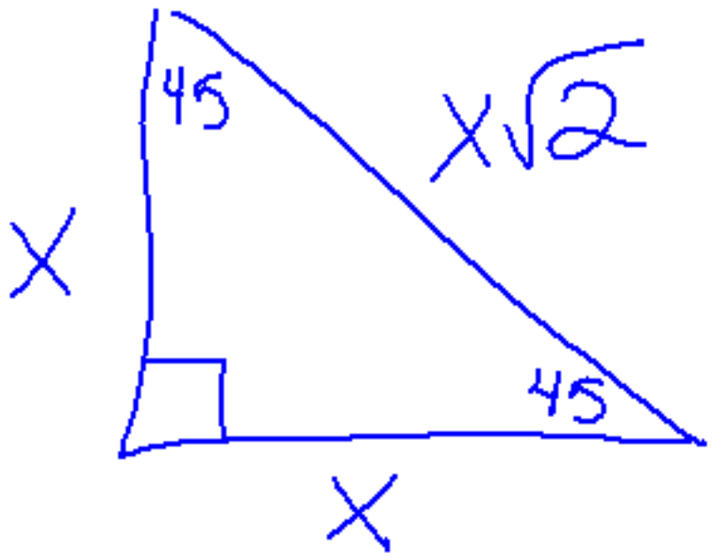
① 

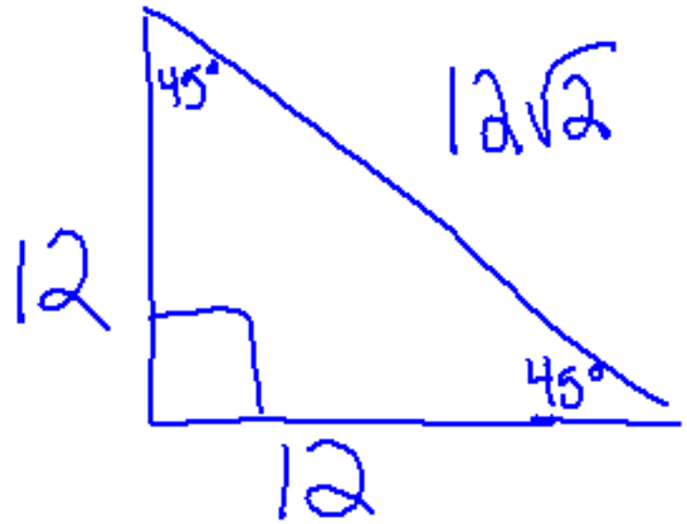


② 

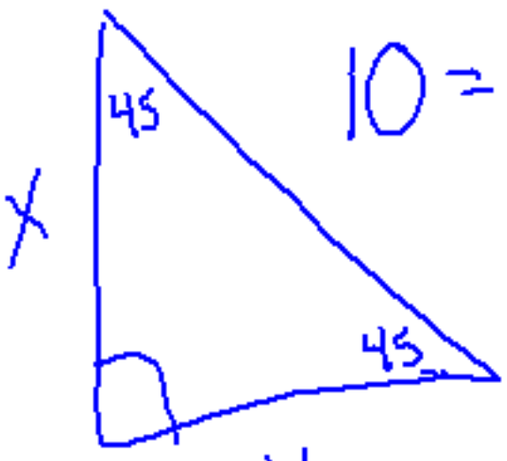


Special right triangle: 45, 45, 90





$5\sqrt{2} = x$



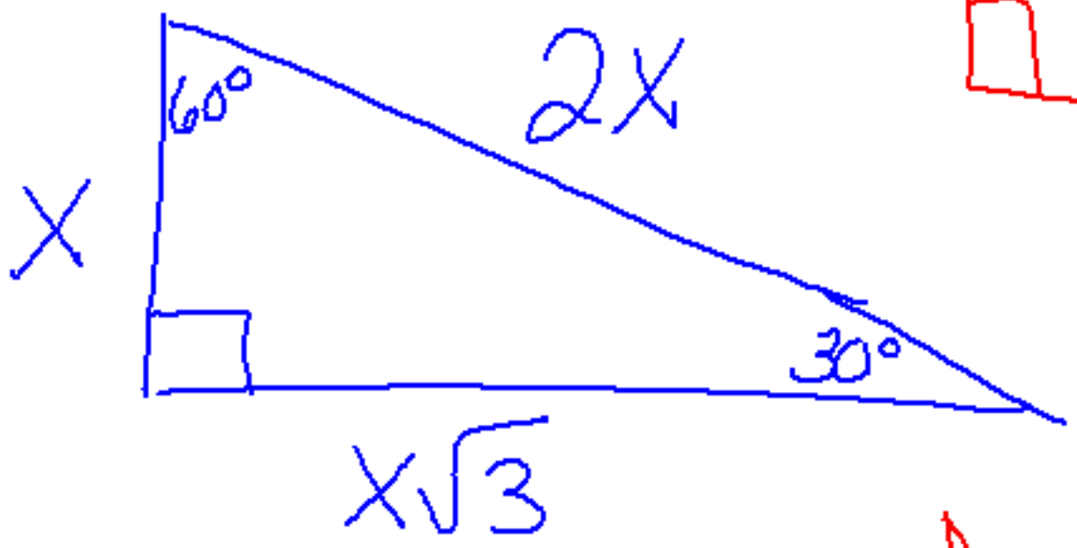
$10 = x\sqrt{2}$

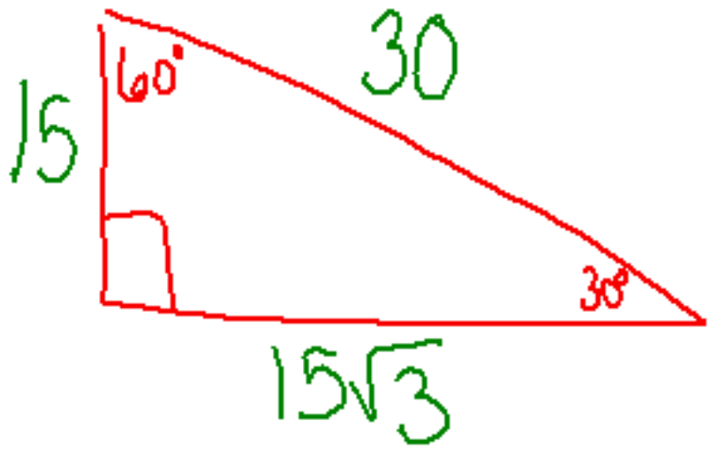
$$\frac{10}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$$

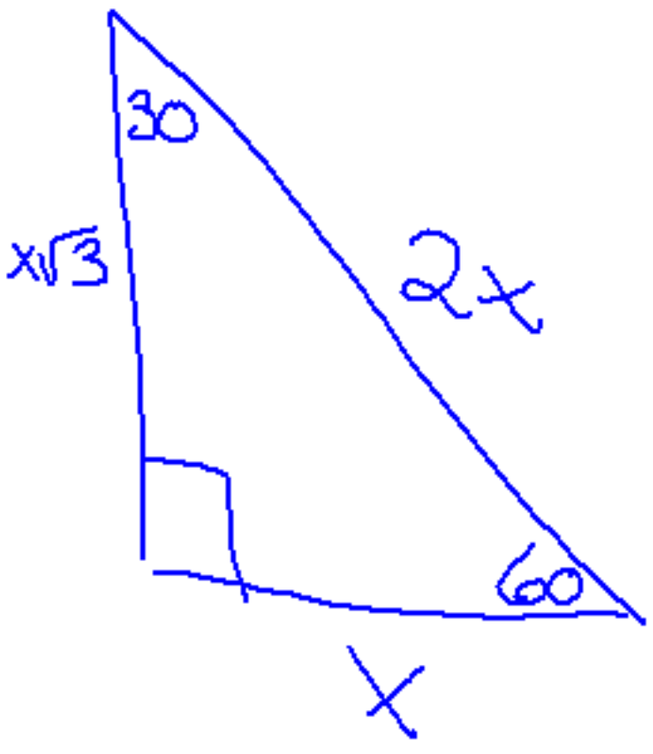
$$5\sqrt{2} = \frac{10\sqrt{2}}{2} = \frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{10}{\sqrt{2}} = x$$

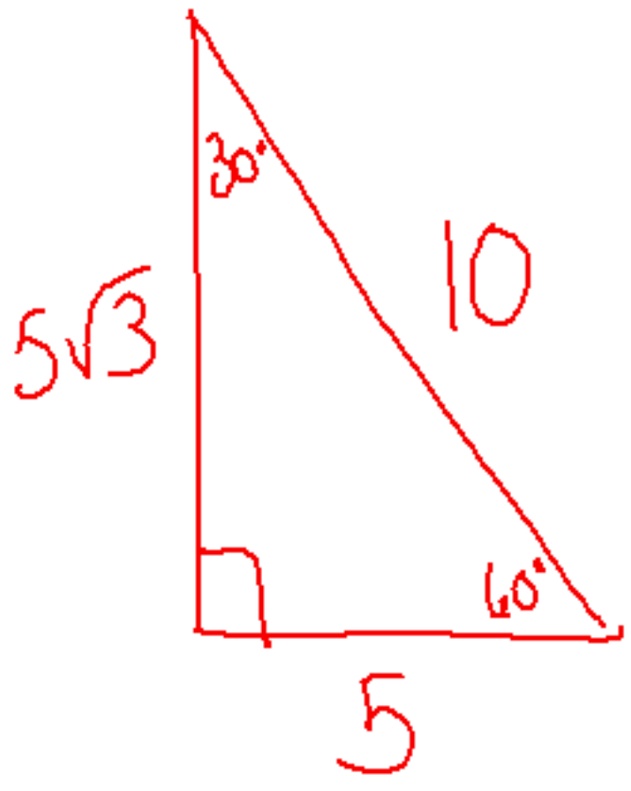
Special right triangle: 30, 60, 90

30, 60, 90





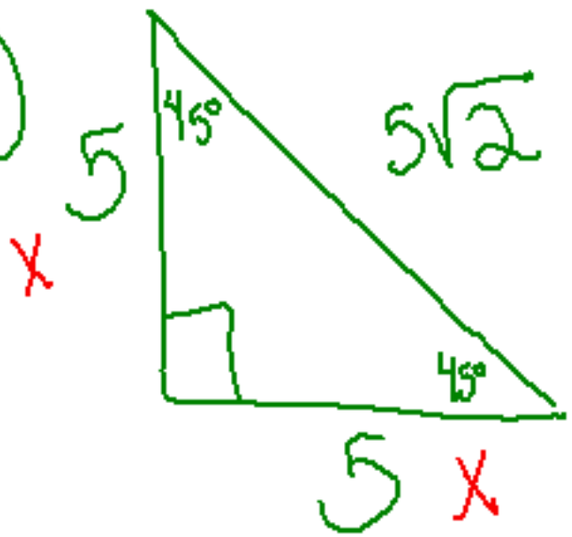




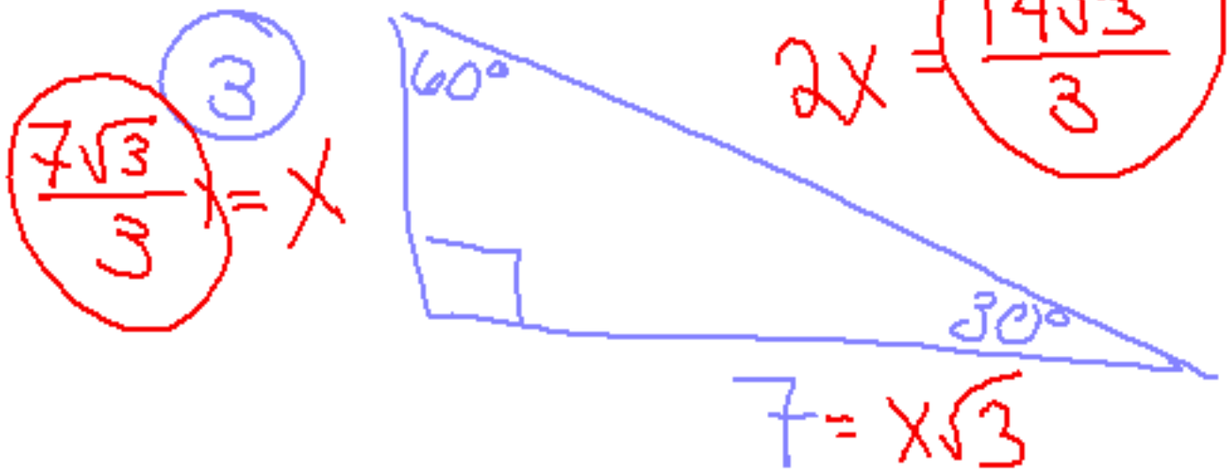
examples (from bottom of notes)

1

2



3



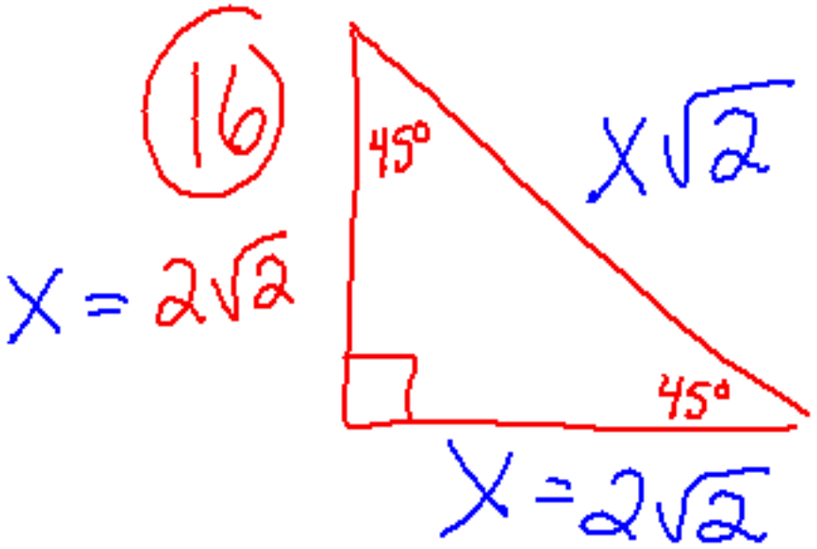
$\frac{7}{\sqrt{3}} = \frac{X\sqrt{3}}{\sqrt{3}}$

$\frac{\sqrt{3}}{\sqrt{3}} \cdot \frac{7}{\sqrt{3}} = X$

$\frac{7\sqrt{3}}{3} = X$

Problems from handwritten worksheet:

16



$x\sqrt{2} = (2\sqrt{2})\cdot\sqrt{2}$

$x = 2\sqrt{2}$

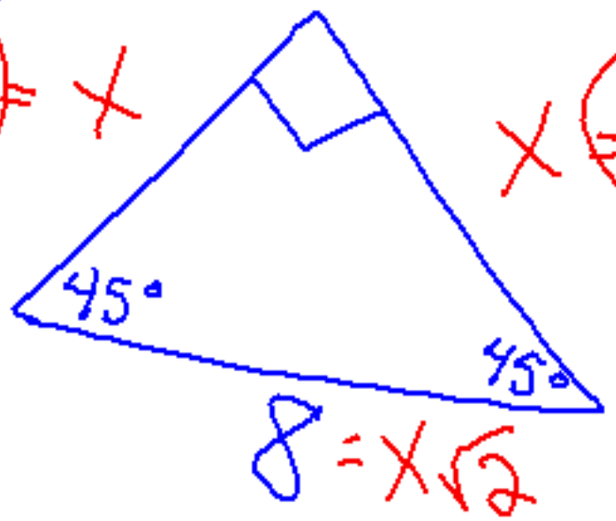
$= 2\cdot 2$

$= 4$

$x = 2\sqrt{2}$

18

$4\sqrt{2} = x$



$x = 4\sqrt{2}$

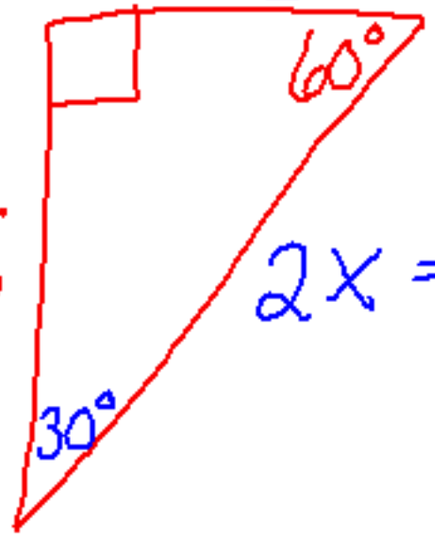
$8 = x\sqrt{2}$

$\frac{8}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$

$\frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{8}{\sqrt{2}} = x$

$\frac{8\sqrt{2}}{2} = x$

39

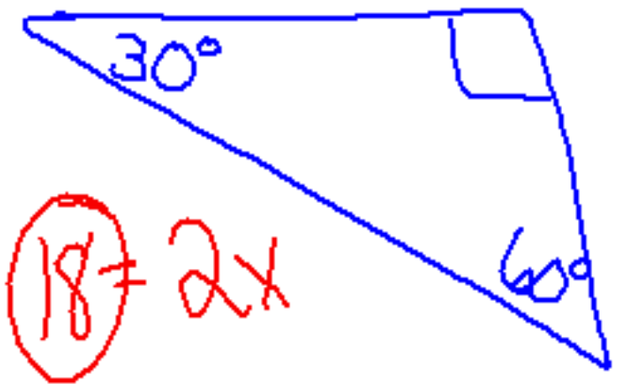


$x = 16$

$x\sqrt{3} = 16\sqrt{3}$

$2x = 32$

41

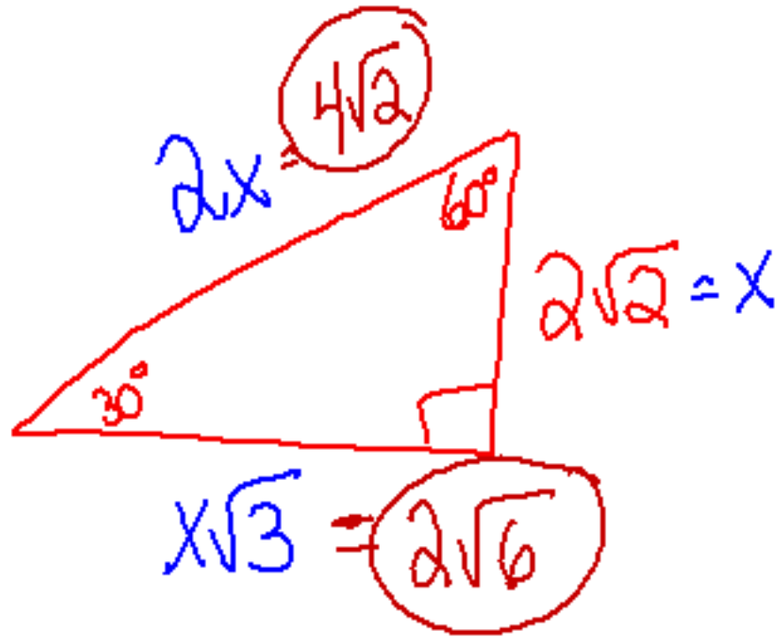


$9\sqrt{3} = x\sqrt{3}$

$x = 9$

$18 = 2x$

43



$2x = 4\sqrt{2}$

$2\sqrt{2} = x$

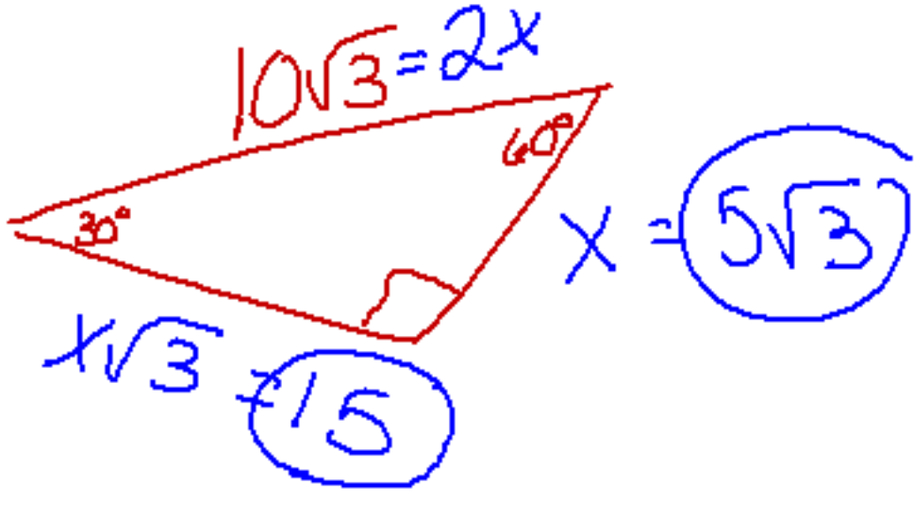
$x\sqrt{3} = 2\sqrt{6}$

$2 \cdot 2\sqrt{2}$

$4\sqrt{2}$

$2\sqrt{2} \cdot \sqrt{3} = 2\sqrt{6}$

44



$x = 5\sqrt{3}$

$$\frac{10\sqrt{3}}{2} = \frac{2x}{2}$$

$$5\sqrt{3} = x$$

$$x\sqrt{3}$$

$$5\sqrt{3} \cdot \sqrt{3}$$

$$5 \cdot 3$$

15

Homework (problems from handwritten worksheet)

#1, 2, 9, 10

#13, 19, 20

#33, 45, 46